B. Amendment to the Title

Please amend the title as follows:

--METHODS FOR ~~SEVERALLY~~ MANUFACTURING CARBON FIBERS, ELECTRON-EMITTING DEVICE, ELECTRON SOURCE, IMAGE DISPLAY APPARATUS, LIGHT BULB, AND SECONDARY BATTERY USING A THERMAL CVD METHOD--

C. Amendment to the Specification

Please replace the paragraph at page 14, line 21, to page 15, line 14, with the following paragraph:

--The carbon nanotubes and the graphite nanofibers described above are preferably applied to an electron-emitting device from the viewpoint of electron-emitting characteristics. In particular, the graphite nanofibers are preferable because they can obtain a large emission current [[more]] better than the carbon nanotubes. However, the present invention can applied to all of the carbon fibers formed by the ~~depressureised~~ depressurized thermal CVD (low-pressure thermal CVD) method, as well as to the carbon nanotubes and to the graphite nanofibers. In this invention, "depressurized atmosphere" and "low-pressure atmosphere" mean [[a]] an atmospheric pressure of ~~an atmosphere is being lower~~ less than 1atm. ~~Incidentally~~ Also, the carbon [[fibers]] fiber in the present invention ~~indicate materials having~~ comprises carbon as [[their]] its principal ~~components~~ component and ~~having~~ its length [[being]] is at least ten times ~~or more as long as their diameters~~ its diameter. A preferable diameter is ~~within a range of~~ from 1 nm to 500 nm, and more preferably ~~within a range of~~ from 5 nm to 100 nm ~~from the point of~~ in view of the electron emission stability ~~of electron emission.~~--

Please replace the paragraph at page 16, lines 3-10, with the following paragraph:

--As the substrate 1 ~~to be used~~ in the context of the present invention, an insulating substrate, such as quartz glass, soda lime glass, ~~alkari~~ alkali free glass, low alkali glass, including a reduced content of an alkaline metal, such as Na, and a high strain point

glass ~~to be used~~ for a plasma display panel (PDP) can be used. Alternatively, a conductive substrate, such as a stainless steel plate, can be used.--

Please replace the paragraph at page 16, line 18, to page 17, line 10, with the following paragraph:

--~~As a formation method of the catalyst layer 31, for example, there is a method for obtaining~~ For example, the catalyst layer 31 may be formed by depositing one of the catalyst materials mentioned above ~~into a thickness of about several nm~~ on the substrate 1 [[by]] to form a layer that is about several nanometers thick using a vacuum deposition apparatus, such as a spatter, and ~~after that by~~ then heating the substrate 1 under a reducing atmosphere to agglomerate the catalyst material to [[be]] form particles. Moreover, the catalyst layer 31 composed of catalyst particles can be obtained also by coating a metal complex solution containing one of the catalyst materials on the substrate 1, baking the ~~substarate~~ substrate to eliminate the solution, and performing the reduction agglomeration treatment ~~thereof~~. Furthermore, the catalyst layer 31 composed of catalyst particles can be also obtained by preparing a liquid in which previously formed catalyst particles are dispersed in a dispersing medium, coating the liquid on the substrate 1, and drying the liquid to eliminate the dispersing medium.--

Please replace the paragraph at page 27, line 23, to page 28, line 10, with the following paragraph:

--Moreover, the "lateral type electron-emitting device" ~~indicates~~ is an electron-emitting device ~~having a form~~ in which an electric field is formed in a direction

substantially parallel to the ~~surafface~~ surface of the substrate and electrons are ~~drawed~~ drawn from the film including the carbon fibers by the electric field. On the other hand, the "vertical type electron-emitting device" ~~indicates~~ is an electron-emitting device ~~having a form~~ in which an electric field is formed in a direction substantially perpendicular to the ~~surafce~~ surface of the substrate and electrons are ~~drawed~~ drawn from the film including the carbon fibers by the electric field. The so-called Spindt type electron-emitting device is included in the vertical type electron-emitting device.--

Please replace the paragraph at page 29, lines 1-15, with the following paragraph:

--Moreover, in the triode structure mentioned above, as shown in FIG. 16, there is a case where the control electrode 72 functions as the so-called gate electrode (an electrode for drawing electrons from the film 77 including carbon fibers). Because the film 77 including carbon fibers can emit electrons at a low electric field strength, there are some cases where the drawing (~~extracing~~ extracting) of electrons from the film 77 including carbon fibers is performed by the anode electrode 91, and where the control electrode 72 may be used for performing the modulation of the electron emission quantity from the film 77 including carbon fibers, a stop of electron emission, or shaping, such as the convergence of an electron beam to be emitted.--

Please replace the paragraphs at page 29, line 20, to page 30, line 14, with the following paragraphs:

--In FIGS. 7A-7E and 8A-8B, [[the]] reference numeral 71 designates the insulating substrate. ~~The reference~~ Reference numeral 72 designates the ~~controle~~ control electrode. ~~The reference~~ Reference numeral 73 designates the cathode electrode. ~~A reference~~ Reference numeral 74 designates a resist pattern. ~~A reference~~ Reference numeral 75 designates a conductive material layer. ~~A reference~~ Reference numeral 76 designates a catalyst layer. ~~The reference~~ Reference numeral 77 designates the film including a plurality of carbon fibers, which is an emitter material.

As the insulating substrate 71, electrically insulation ~~substare~~ substrate, such as quartz glass described in FIG. 3, can be used. The surfaces of the substrate materials are sufficiently washed to be used.

The ~~controle~~ control electrode 72 and the cathode electrode 73 ~~have electrical conductivity;~~ are electrically conductive and are formed by a general film formation technique, such as a vacuum deposition method and a sputtering method, a photolithography technique and the like. Preferably, the electrode materials are thermostable, ~~materials~~ such as carbon, a metal, a metal nitride ~~of a metal~~, and a metal carbide ~~of a metal~~.--

Please replace the paragraphs at page 30, line 21, to page 31, line 6, with the following paragraphs:

--After the substrate 71 is sufficiently washed, ~~a not shown~~ an electrode layer (not shown) is first formed on the ~~whole of the~~ entire substrate 71 for forming the ~~controle~~ control electrode 72 and the cathode electrode 73.

Next, [[at]] in a photolithography step, a resist pattern is formed by the use of a ~~not shown~~ positive type photoresist (not shown), and dry etching is performed by the use of the patterned photoresist mentioned above as a mask to [[make]] form an electrode gap (an interval of a gap between the ~~controle~~ control electrode and the cathode electrode) of several microns (for example, 5 μm). Thus, the ~~controle~~ control electrode 72 and the cathode electrode 73 are patterned (see FIG. 7A).--

Please replace the paragraph at page 32, line 16, to page 33, line 2, with the following paragraph:

--An electron-emitting device, in which the ~~controle~~ control electrode (gate electrode) 72 and the cathode electrode 73 are separated ~~with an~~ by a several micron electrode gap, ~~of several microns between~~ is set in a vacuum apparatus 98, as shown in FIG. 9. The inside of the vacuum apparatus 98 is then exhausted until the inside pressure becomes about 10^{-4} Pa by a vacuum exhaust apparatus 99. An anode 90 is set at a position ~~being high by~~ that is several millimeters [[from]] higher than the substrate 71, and a high voltage Va of a several kilovolts is applied to the anode 90 by means of a high voltage power source. Incidentally, a phosphor 91 covered by a conductive film is attached to the anode 90.--

Please replace the paragraph at page 42, lines 20-26, with the following paragraph:

--FIG. 14 ~~therein~~ shows representative data obtained under the conditions such that the growth temperature was 600°C and the total pressures in the reaction container 40 were 600 Pa (reduced pressure), 2000 Pa (reduced pressure) and 0.1 [[Mpa]] MPa (corresponding to the atmospheric pressure). Both of the X-axis and the Y-axis [[of]] in FIG. 14 are ~~shown in logarithms~~ logarithmically scaled.--